An Integrated Solution to Protect Privacy, Confidentiality, Integrity and Reliability for Sensor Data Management

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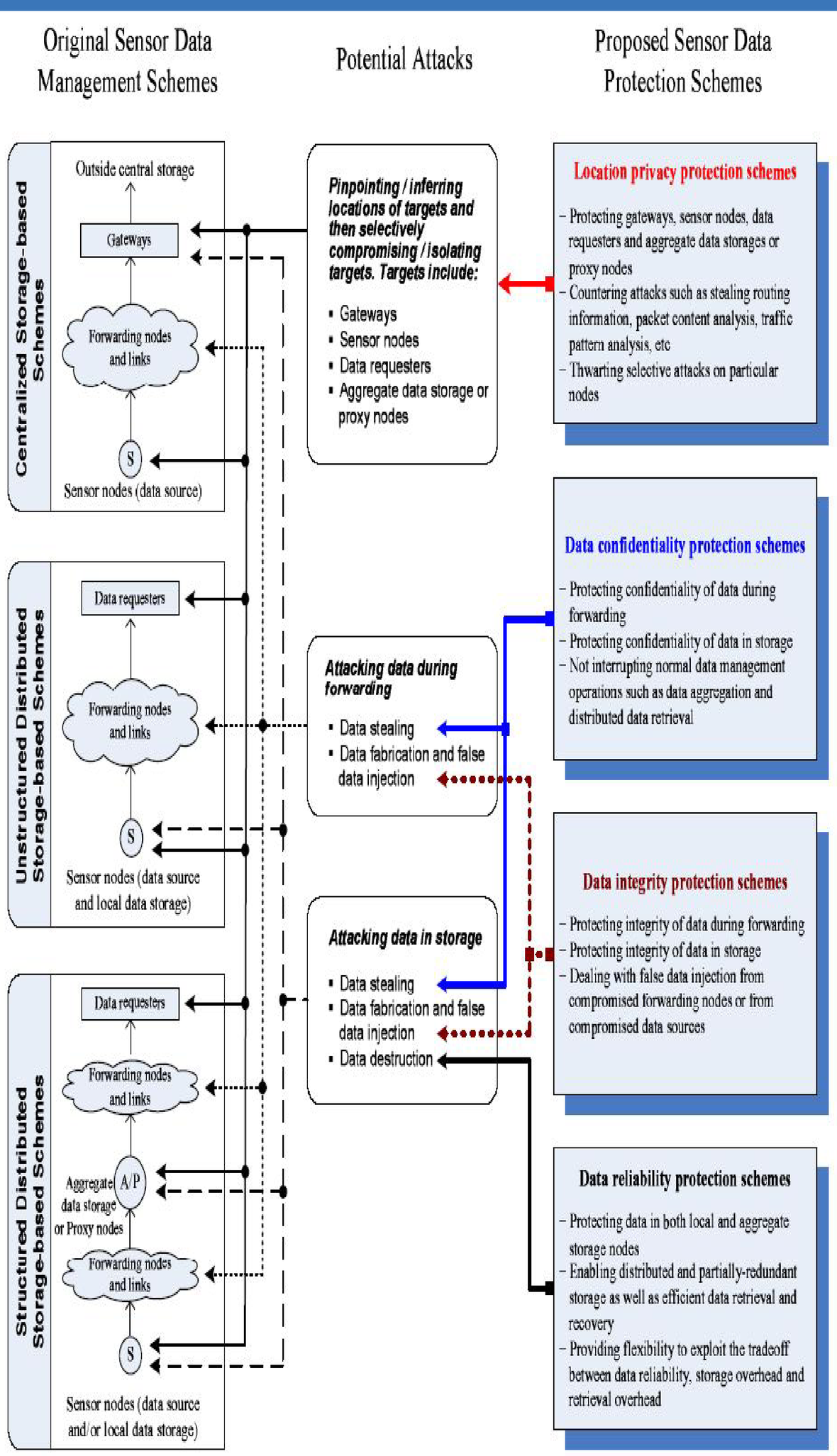
Problem

An essential mission of sensor networks is to manage sensor data such that useful data are stored safely and authorized users can securely access data of their interest. Many existing protection schemes are limited in: (a) lack of protection for advanced data management, (b) disrupting normal data management operations, (c) high overhead and lack of adaptability to balance security and overhead, and (d) no systematic solutions to counter multiple types of attacks simultaneously.

Approach and Impact



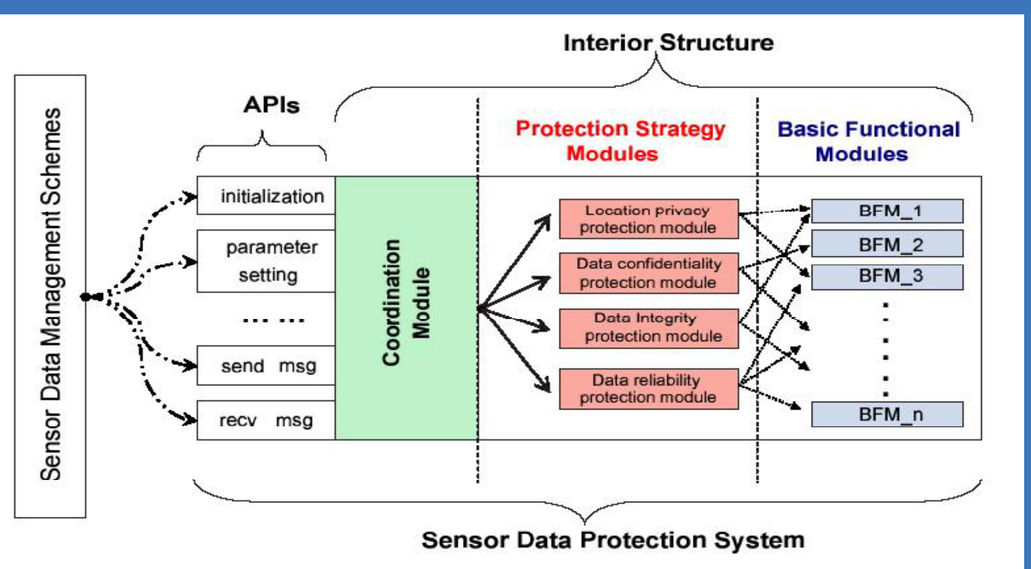
Phase I: Original schemes, potential attacks, and protection schemes

New approach

- Phase I: Developing new schemes for privacy, confidentiality, integrity, and reliability protection
- Phase II: Integrating schemes with a hierarchical and modular software structure

Research Impact: The research will result in

- An integrated solution to defend against multiple attacks simultaneously
- Suggestions on resolving incompatibility among different security schemes
- New cryptographic and non-cryptographic methodologies



Phase II: Approach to integrate Schemes

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